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For the Advocate of Science.

GEOLOGY, No. 17.

In my last number, I treated of tertiary sands and calcareous sandstone, and of petrifaction and the gradual formation of limestone by the deposition of lime from limestone waters. Belonging to the class of recent limestone formations are *coral reefs*, the construction of which is one of the most interesting of geological phenomena.

Nature and minuteness of the coral insect, and magnitude of its operations.—The animal which produces coral, belongs to the tribe of Zoophytes, or plant-animals, so called because they were once supposed to constitute a connecting link between plants and animals. In modern times this class of beings has been admitted into the animal family. The coral animal is exceedingly small, and possesses the property of enclosing itself in a shell-like case of limestone. But although so diminutive, yet by the incessant labor of its countless numbers, it has produced in some places no trifling change in the face of the globe. Along the coast of New Holland is an extensive range of this character, 350 miles in length, which is connected with other reefs of coral, so as to form a structure of nearly 1000 miles long and from 20 to 50 in breadth.

Different stages of growth of a coral reef.—The foundation of a coral reef is composed of the calcareous abodes of a multitude of the animalculæ attached to the bed of the ocean. The animals dying in the course of time, the interstices of their dwellings are filled up with particles of shell or sand, and the whole becomes cemented firmly together, either by the glutinous remains of the dead occupants, or by the action of the wate. of . a. Meanwhile another generation has peopled the spot, and buil. on the ruins of the former race. The same process is repeated again and again till the vast edifice reaches above the surface of the ocean. It is then deserted by its builders, but continues to increase by the depositions from the water. Every high tide and every gale adds something to the bank, and sea weeds at length grow on the new land. A soil being thus formed, the surrounding strait or channel is navigated by a cocoa-nut and by other seeds from the adjacent land, which plant a rich colony of vegetation on the island. It is now visited by birds, which plant it with other vegetables. Finally comes civilized man to take possession of the fertile soil, little reflecting that he is indebted for the bountiful crops which he reaps therefrom, to a creature that scarcely claims the enjoyment of animal life,—that cannot move an inch from the spot where it began its existence,—that is as completely unknown to the mass of his fellow beings as though it did not live.

Wonderful instincts of coral insects.—Most of the coral reefs are built in the form of a crescent or of the segment of a circle, with the back to the sea, as if the little architects were aware of the properties of the arch, and knew that it would resist the dashing of the waves better than a straight line. The back of the coral crescent is generally directed towards the quarter from which storms most frequently come. The care taken to work perpendicularly in the early stages of their operations would also mark a surprising instinct in these diminutive creatures. Their wall of coral, for the most part built in situations where the winds are constant, having arrived at the surface, affords a shelter, to leeward of which their infant colonies may be safely sent forth; and to this, their instinctive foresight, it seems to be owing, that the windward side of a coral reef exposed to the open sea, is generally, if not always, the highest part, rising almost perpendicularly, sometimes from the depth of 200 fathoms.

Supposed origin of many South Sea Islands.—The incessant labor of coral and madrepore insects through a long series of ages, has elevated many islands from the bottom of the ocean. An intelligent voyager assigns this cause as the most probable method of accounting for the origin of all the *low* tropical isles, over the whole South Sea. In one of my previous articles I stated the doctrine of some noted geologists attributing the elevation of the continents from the bed of the ocean to the labors of zoophytes and shell fish!

Coral of Red Sea.—The Red Sea derives its name from the vast quantity of red coral on its bed, which gives a red appearance to the water.

Peat moors.—The conversion of vegetable into mineral substances also contributes greatly to the formation of strata in many parts of the world. In many countries, the surface is composed entirely of a stratum of this nature, which receives the name of *peat*. A formation of peat, or a *peat moor*, is an almost entire marshy flat, of several miles in extent, of a brown color, and here and there marked with a tuft of marsh sedge. Not a tree or shrub is to be seen, not a blade of green grass to relieve the eye in wandering over the dreary prospect. A more close examination detects a wet, spongy surface, passable only in the dryest seasons, or when all nature is locked in frost. The surface of peat moors sometimes has a different aspect, owing to the more abundant growth of heath and other aquatic plants. These, like plants of a similar character in our own swamps, grow in clusters, so that if the bog be at all passable, it must be by stepping from one tuft to another, avoiding the intervening black slime. The stratum of peat is often only a few feet in thickness, but sometimes it has been discovered to form a bed of forty feet deep.

Localities of peat.—Peat moors abound in many parts of Europe, especially in Scotland and Ireland. Those of the latter country have given origin to numerous traditions of wonderful events. In Scotland, peat is found on the tops of some mountains, at the height of 2000 feet. It also occurs, in greater or less quantity, in almost every quarter of the globe.

Use of peat.—Peat is employed for fuel in many parts of Ireland and Scotland, where no other material can be easily procured. For this purpose, it is dug from its native situation in square masses, and exposed to become dry, when it burns with ease.

Origin of peat.—Peat is composed of the roots of those plants which inhabit swamps and bogs, in a state of partial decomposition. While the growth of the plant is going on above ground, the lower extremities of the root are undergoing the process by which they become converted into a carbonaceous substance. In many places, this conversion progresses so rapidly that the whole plant falls a victim to the laws of chemistry, and the soil is left for a time completely destitute of vegetation. In general, the plants that grow on peat moors hold their life by a frail tenure, and appear to be vacillating between life and death.

Antiseptic properties of peat.—The property possessed by peat of preserving animal bodies from putrefaction is deserving of notice. A well attested account has been published in England of the preservation of two human bodies in this way, for a great length of time. On the 14th of January, 1675, says the narrative, "a farmer and his maid servant were crossing the peat moors above Hope, near Castleton, in Derbyshire. They were overtaken by a great fall of snow, and both perished. Their bodies were not found till the 3d of May of the same year, and being then offensive the coroner ordered them to be buried on the spot, in the peat. They laid undisturbed twenty-eight years and nine months, when the curiosity of some countrymen induced them to open their graves. The bodies appeared quite fresh, the skin was fair and of its natural color, and the flesh as soft as that of persons newly dead. They were afterwards frequently exposed as curiosities, until, in the year 1716, forty-one years after their burial, and twelve years after their exhumation, they were again buried by order of the man's descendants. At that time, the skin and other parts were perfect, and the joints played freely without the least stiffness." In the beginning of the last century, the perfect body of a man, in the ancient Saxon costume, was discovered buried in peat, in Yorkshire. It soon perished on exposure to the air.

Preservation of animals in America.—It is owing probably to peat, or a substance analogous to it, resulting from the carbonization of vegetable matter, which enters into the composition of the soil, that the bodies of the mammoth and some other animals have been so long preserved in the low grounds of the western United States. The facts respecting these animals were related in treating of the diluvial formations. Carbon is known to possess the property of preserving flesh from putrefaction, and it is for this reason that charcoal is often placed in coffins around the bodies of the dead. S.

For the Advocate of Science.

CUVIER'S CLASSIFICATION OF ANIMALS.

The animal kingdom consists of two grand sections, the one embracing such animals as have a vertebral or spinal column, in common language a back bone, which contains the spinal marrow, and a bony skeleton; and the other destitute of these. The two sections are called respectively, *vertebrated* and *invertebrated* animals. The former, one readily perceives, includes the first four classes of Linnæus, and the latter the remaining two.

The *invertebrated* animals are again divided into three families, the first of which contains such animals as have a soft body with no skeleton, an apparatus for the circulation of the blood, and a respiratory apparatus, or lungs. Some of them have shells covering their bodies. This section is named, *mollusca.*

The second division of the *invertebrated* animals, contains such as have the body furnished with a number of rings or joints, to which their organs of motion are attached; they are hence called *articulata*, or jointed. They have no heart, nor circulation of blood, neither have they lungs.

The third division is named *radiata*, or radiated, because the parts of the body proceed from a centre. They approach plants in their low grade of vitality, possessing no distinct organs of sense.

Hence we have the four following sections: 1. *vertebrated*, 2. *molluscous*, 3. *articulated*, 4. *radiated.*

Classes: § *vertebrata.* 1. Mammalia, or suckling animals, 2. Aves, or birds, 3. Reptilia, or reptiles, 4. Pisces, or fishes.

§ *Mollusca:* 1. Cephalapoda, (*cephalo*, head, *poda*, foot,) which have limbs for crawling proceeding from the head; 2. Pteropoda, (*ptera*, wing, *poda*, foot,) in which the crawling apparatus is a pair of wing-like members, 3. Gasteropoda, (*gastero*, stomach, *poda*, foot,) which crawl on their stomach, 4. Acephala, (*a*, without, *cephala*, head,) which have no head, 5. Brachiopoda, (*brachio*, arm, *poda*, foot,) which crawl by a sort of arms, 6. Cirrhopoda, (*cirrho*, a jointed limb, *poda*, foot,) which crawl by jointed limbs.

§ *Articulata:* 1. *Annelides*, worms without jointed limbs for crawling, as the earth worm, 2. Crustacea, or shelly, as the crab, 3. Arachnides, with the head and chest united, as the spider, 4. Insectæ, with the head and chest separated, as the fly.

§ *Radiata:* 1. Echinodermes, (*echino*, spine, *dermes*, skin,) having the surface covered with spines, as the star fish, 2. Entozoa, (*ento*, within, *zoa*, animals) intestinal worms, 3. Acalepha, or sea nettles, 4. Polypi, the polypus, sponge, 5, Infusoria, infusory worms.

The *orders* of the *vertebrated* animals are as follows: Class Mammalia: 1. *Bimana*, (*bi*, two, *mana*, hand,) or two handed, including the single genus, man; 2. *Quadrumana*, (*quadru*, four, *mana*, hand,) or four handed, as the monkeys; 3. *Carnaria*, or flesh eaters, without a thumb, but possessing the three kinds of teeth found in the human jaw, as the lion, dog; 4. *Rodentia*, or gnawers, with projecting front teeth, and no dog teeth, as the squirrel, rat. 5. *Edentata*, or toothless, having no front teeth, as the sloth; *Ruminantia*, or ruminating, which chew the cud, and have cloven hoofs, as the cow; 7. *Pachydermata*, or thick skinned, which chew the cud, but have hoofs, as the elephant, horse; 8. *Cetacea*, or the whale family.

Class Aves: the orders of Cuvier are here the same as those of Linnæus, but called by different names. 1. *Accipitres*; 2. *Passerinæ*, corresponding with the *Passeres* of Linnæus; 3. *Scansoriæ*, (or *picæ* of Linnæus;) 4. *Gallinaceæ*; 5. *Grallatoriæ*, (*grallæ* of Linnæus;) 6. *Palmipedes*, (*anseres* of Linnæus.

Class Reptilia: 1. *Chelonia*, or *tortoises*; 2. *Sauria*, or *lizards*; 3. *Ophidia*, or *serpents*; 4. *Batrachia*, or *frogs.*

Class Pisces: the orders of this class depend, like those of Linnæus, on the gills and fins. But they are differently arranged, and are more in number. To explain them clearly would require more space than I can now occupy.

The orders of the remaining classes, I will pass by for the like reason, observing at the same time, that the numerous class of insects is divided according to the same plan as that of Linnæus, and that the other invertebrated animals are already more minutely divided by Cuvier in arranging them in classes, than by Linnæus in arranging them in orders.

Although this outline is exceedingly imperfect, yet it is sufficient to give some idea of the system of Cuvier. To a well disciplined, and considerate mind there is something striking and beautiful in contemplating the whole range of vital beings grouped together in this manner, each in its proper family; presenting a gradation in the chain of life, from man to the lowest speck of vitality whose claims to a place in the animal kingdom are not easily appreciated. The sketch which I have given resembles the design of some magnificent edifice. A keen and comprehensive eye can discern its grandeur long before the materials of the structure have been laid in their places, and its halls and galleries and columns completed. It is my intention to follow up this rude plan by a regular series of essays on the various subjects, or individual animals, regarded by it. Those of my readers who may not be disposed to treat this essay with more than a vacant gaze, cannot but be interested in a more minute examination of themselves and their fellow animals.

ARANEA.

Monstrosity.—Dr. Scontellin of Metz, has communicated to the Academy of Science of Paris a wonderful case of monstrosity. On the 26th of June, 1832, Catharine Ruff, aged 32 gave birth to two female children connected together by the lower part of the chest and the upper part of the abdomen. One of them has no head the vertebral column stopping suddenly at the level of the shoulders. They are both living and increasing in size. The mother has been invited to bring them to Paris.

For the Advocate of Science.

HISTORY OF TOBACCO.

When America was first discovered, the tobacco plant was found cultivated by the natives in the West India Islands and in many parts of the continent, particularly in those bordering on the Gulf of Mexico. We can incur but little risk in considering this plant as indigenous to the southern parts of the United States. From the extensive use of it, indeed, by the aborigines of this continent, and the vast extent of country over which it spread, it is highly probable that it was cultivated in various parts of America for many centuries previous to its discovery.

This article is the product of several species of Nicotiana; but chiefly of the Nicotiana *tabacum*, and the Nicotiana *rustica*, sometimes called English tobacco, as being the kind Sir Walter Raleigh introduced at the court of Queen Elizabeth. Another species, Nicotiana *fruticosa*, is said to have been cultivated in the east prior to the discovery of America. We learn from Bigelow that the Indians on the banks of the Missouri and Columbia rivers cultivate for use the Nicotiana *quadrivalvis* of Pursh and Nuttall. Tobacco raised in warm climates is said to be more mild in its flavor, while that grown in colder latitudes is stronger and more pungent. The Bengal tobacco, of which the cheroots are made, is one of the weakest and mildest in its properties. After this is the West India tobacco, of which the Havanna cigars are made. Next in order is that of our southern States; and lastly, the tobacco raised in the northern parts of the United States, which is the most acrimonious and pungent of all.

It is an annual plant, capable of perfecting its flowers and fruit in almost any part of the United States; yet seldom found growing spontaneously, except in cultivated ground, or their immediate vicinity. It is extensively grown in the lands adjacent to James river in Virginia, especially in the counties of Amherst and Nelson. For the most part it is successfully raised in rich soils, on the declivity of large hills, or even mountains. The tobacco is a crop of the most ungrateful character; for the leaves and stems finding their way into the market, there is no return in the form of manure.

After it is collected and the process of drying &c. has been performed (called curing) it is packed in hogsheads of a large size. These are then surrounded by two thick, wooden bands, which raise them about eight inches from the ground and serve the purpose of wheels. The heads are then perforated to admit a spindle or gudgeon of wood, to which a pair of shafts are attached, and by the aid of a horse or mule, they are taken to the nearest warehouse or landing.*

Perhaps there is no plant which has less in its external and sensible properties to recommend it than the common tobacco. Its taste in the green state is acrid, nauseous and repulsive, and a small quantity taken into the stomach excites distressing sickness, vertigo, great prostration of strength, and vomiting.

Its use, which originated among the savages, has extended into every civilized country. It has made its way against the declamations of the learned, and the prohibitions of civil and religious interdicts, and it now gives rise to an extensive branch of agriculture in several countries, and of commerce in every part of the globe. The commercial importance of this plant, as appears from the exports of the year 1831, entitles it to the rank of the third staple article of our country, constituting nearly the twelfth part of all our exports.

"The aborigines of this country employed tobacco as incense in their sacrificial fires, believing that the odor of it was grateful to their gods. Among all nations propitiatory offerings have been selected from those things which were most invaluable in the eyes of the devotee, and nothing has been considered a fit offering to the god that has not involved an act of self denial in the man. The priests of some tribes swallowed the smoke of the plant to excite a spirit of divination, and this was done to a degree which threw them into a trance of many hours continuance. When recovered from this fit of intoxication, they gravely asserted that they had held a conference with the devil, and had learned from him the course of future events. Their physicians also became inebriated with the smoke; and pretended that while under the influence of its intoxicating effects, they were admitted to the councils of the gods, who revealed to them the character and issue of diseases."

"In the year 1559 tobacco was sent into Spain and Portugal, from Florida, by Hermandez de Toledo, and from thence the seeds were conveyed into France to Catharine de Medicis, as a curiosity, by Jean Nicot or Nicotia, ambassador at the court of Lisbon, whose name is now immortalized by its association with this genus of plants. From this period the use of tobacco spread rapidly over the continent, and in half a century it was known in most of the countries of Europe. The rich considered it as a luxury of the highest order, and the poor gave themselves up to it as a solace to the miseries of life. One extreme produced another, and the prejudices against the plant became so strong, and the excessive extent to which its use was carried in many countries (particularly Germany and Holland) was such, that the constituted authorities both of church and state found it necessary to interpose and check the extravagant indulgence of it by the severest prohibitions."

James the First, of England, besides writing a book, quaintly styled a "Counterblast to Tobacco," gave orders that no planter in Virginia should cultivate more than one hundred pounds.

"In 1624 Pope Urban VIII. published a decree of excommunication against all those who took snuff in the church. Ten years after this, smoking was forbidden in Russia, under the pain of having the nose cut off. In 1653, the council of the Canton of Appenzel cited smokers before them, whom they punished, and they ordered all innkeepers to inform against such as were found smoking in their houses. The police regulations of Berne made in 1661, were divided according to the ten commandments, in which the prohibition of smoking stands immediately beneath the command against adultery; this prohibition was renewed in 1675, and the tribunal instituted to put it into execution—viz. *Chambre au Tabac*—continued to the middle of the eighteenth century. Pope Innocent XII. in 1690, excommunicated all those who were found taking snuff or tobacco in the church of St. Peter at Rome; even so late as 1719, the senate of Strasburgh prohibited the cultivation of tobacco from an apprehension that it would diminish the growth of corn; Amurath IV. published an edict which made smoking tobacco a capital offence."

* The gross amount of exports of the year 1831, ending the 30th of September, amounted to $61,277,057, of which the article cotton amounted to $25,289,492; flour, $9,938,458; tobacco, $4,892,338; gold and silver comprized $2,058,474; reducing the articles exported to the value of $59,218,583.

In a more extended view of the commercial operation in this great staple, it will be seen that the average value exported from the year 1805 to 1820, amounted to $5,821,693; from the year 1821 to 1831, $5,441,381. In 1826, the export was extended to the immense amount of $12,809,000.

Even in this enlightened country, where the use of tobacco originated, we find our unsophisticated ancestors, guarding against its abuse by salutary statutes.

In the old colony laws of Massachusetts Bay, there is an act laying a penalty on any one who shall smoke tobacco within twenty poles of any house, or who shall take tobacco in any inn, or common victualling house, except in a private room; so that neither the master of the said house, nor any guest shall take offence thereat.

We find in the earliest records of Harvard University, a regulation of this kind:—"No scholar shall take tobacco, unless permitted by the president, with the consent of the parents or guardians, and on good reasons first given by the physician, and then in a sober and private manner.'

While the legal authorities in various parts of the world, took upon them to control the abuse of this fascinating herb, the literati became its advocates, and entered warmly into the discussion of its merits. Both Castor Durant and Raphel Thorius wrote Latin poems expressly in its praise. The latter, in his work entitled "Hyms to Tobacco," is very lavish in his ascriptions to this plant, which he styles the "gift of heaven and the ornament of earth." The prejudices of its advocates were so warm that it obtained the reputation of a general panacea; and the catalogue of diseases which it was asserted to cure, amounted almost to a complete nosology.

Camden in the life of Queen Elizabeth, says—"that men used tobacco every where, some for wantonness, and some for health's sake, and that with insatiable desire and greediness, so that Englishmen's bodies were so delighted with this plant, that they seemed, as it were, degenerated into barbarians."

A work entitled "Vita Recta at Vitam Longam," published at London, in 1638, by Dr. Verner gives a brief summary of the injuries done by tobacco; he says, "It drieth the brain, dimmeth the sight, vitiateth the smell, hurteth the stomach, destroyeth the concoction, disturbeth the humors and spirits, corrupteth the breath, inducing a trembling of the limbs, exsiccateth the windpipe, lungs and liver, annoyeth the milt, scorcheth the heart, and causeth the blood to be adusted. In a word, it overwhelmeth the spirits, perverteth the understanding, and confoundeth the senses with sudden astonishment and stupiditie of the whole body." But the most celebrated of all the invectives against tobacco was the "Counterblast of King James I." That weak monarch gave vent to his prejudices against the herb in a publication in which he professess to disprove all the alleged grounds for the toleration of tobacco, and warns his subjects in the most earnest manner "not to sin against God and injure their own persons and goods by persevering in a practice loathsome to the eye, hateful to the nose, and baneful to the brain."

Such is a brief account of the commotions excited by the introduction and diffusion of a substance, the use of which has now become so general as scarcely to attract notice. J. C. T.

(*To be continued.*)

Sailing of the Nautilus.—When the Nautilus wishes to rise to the surface of the water, and take a sail, it first expels a quantity of water from its shell, the place of which is supplied with air; and the animal then ascends and floats. It then raises its sail, which consists of a membrane stretched between two arms with which the little mariner is supplied, at the same time thrusting out into the water another arm on each side, as a rudder or an oar. When they wish to sink, the sail and rigging are all drawn in, and the air expelled and water substituted. By these means they can descend so quickly as to render it difficult to capture them. Their chief object in sailing seems to be diversion. When the sea is calm, whole fleets may occasionally be seen thus amusing themselves. With many of the ancients it was a favorite idea that the arts were taught to mankind by inferior animals. Thus the spider taught spinning, the silkworm weaving, the nightingale music. And thus Darwin represents man acquiring the art of navigation—

"Learn of the little Nautilus to sail,
Spread the thin oar, and catch the driving gale."

THE ADVOCATE OF SCIENCE.

Tenth Month 10, 1833.

In our present number we commence an interesting article on the history of Tobacco, with which we have been favored by a correspondent. Such of our readers as are friendly to its use, may probably be instructed by perusing it, while seeking solace in the companionship of their tutelary friend.

PHRENOLOGY.

This is one of the subjects to which we intend ere long to devote a few pages of the Advocate. Our attention is drawn to it at present by the recent publication of a work on that science by Spurzheim, with a biographical sketch of the author. Without committing ourselves in the case, we remark, that the objection to it on the ground of its leading to materialism, is not well founded. The essence of the science is that each faculty of the mind, each passion and propensity is exercised by virtue of a distinct portion of the brain, the magnitude of which corresponds with the strength of the faculty, passion, or propensity, represented by it. We are all agreed that the brain is the organ of the mind—not that it is mind, or that it reflects and wills, but that the mind acts and developes its qualities through the medium of the brain. Phrenology analyzes the mental operations, and assumes that each faculty has a brain, as it were, of its own. We are all agreed that individuals are differently constituted in respect to strength of intellect and passion; that one man possesses naturally stronger appetites, or stronger reasoning powers than another. Phrenology ascribes these endowments to the greater size of the organs or sections of the brain on which they depend. It also assumes that the form of the skull is modified by the natural form of the brain, those portions or organs which are exuberant producing a corresponding fulness in that portion of the skull; and hence that we can ascertain the mental capacities, and predominant traits in the character of the individual by inspecting the outside of his head.

Now, there is not *necessarily* any materialism in this, that we can perceive. Nevertheless, we are disposed to doubt the practical utility of the science. At least, we fear the evils attending the application of it, would be more than sufficient to counterbalance its advantages. Moreover, it need not be an object of solicitude to any one; for we believe it is not calculated ever to be acted on by the mass of mankind.

As an illustration of the practical bearing of phrenology, we quote the following account of a visit made by Dr. Gall, one of its founders, to the prison of Berlin:—

"In a room, where the women were kept apart, he distinguished one dressed exactly like the others, occupied like them, and differing in no one thing but in the form of her head. 'For what reason is this woman here,' asked Gall, 'for her head indicates no propensity to theft?' The answer was, 'She is the inspectress of the room.' One prisoner had the organ of benevolence and religion as strongly developed as those of theft and cunning; and his boast was, that he never had committed an act of violence, and that it was repugnant to his feelings to rob a church. In a man named Maschke, he found the organ of mechanical arts, together with the head very well organized in many respects; and his crime was coining. In Throppe he saw the same organ. This man was a shoemaker, who, without instruction, made clocks and watches, to gain a livelihood in his confinement—on a nearer inspection, the organ of imitation was found to be large. 'If this man had ever seen a theatre,' said Gall, 'he would, in all probability, have turned actor.' Throppe, astonished at the accuracy of this

…ce, confessed that he had joined a troop of players for six months. …rime too was having personated a police officer, to extort money. The …s of circumspection, prudence, and foresight, were sadly deficient in …, a man, who, in a drunken fit had stabbed his best friend. In some …rs he found the organ of language, in others, of color, in others, of …matics: and his opinion in no single instance, failed to be confirmed …known talents and disposition of the individual."

…readers will observe that the science failed here in no instance. …it does happen to fail, the cause is very evident. The natural dispo… of a man may be suppressed or changed by circumstances, says the …logist, and therefore the character of the individual as drawn from …mps on his head, may now and then fail to indicate his forced or un… character.

…following account of a visit of Dr. Spurzheim to a school in Boston, …fail to be amusing. The girl appears determined on verifying the …ion of the Doctor:—

…this time the curiosity of the pupils was so much excited, that all …work was interrupted. Children that had been called, remained …g round the doctor, and in a short time others joined him, and he …audience of twenty or thirty. He was a decided favorite. At this …t, a few of the larger pupils brought forward a Miss about thirteen …old, who had, as they thought, a very small head, and respectfully …ed Dr. Spurzheim to tell what her head was good for. He turned to …d said, 'Imitation. Oh how full!' I asked him how it would be …to show itself. 'In mimicry,' said he, 'as likely as in any way. Is …t a great mimic?' I had never suspected her of any such disposition, …rning to her companions, I asked them if they had ever seen her at… to mimic any one. 'O, sir,' said they, 'she is the greatest mimic …er saw, she takes every body off.' This was news to me; 'you may …on it,' said Dr. Spurzheim, 'she will be taking me and my foreign …off before I leave the room;' about fifteen minutes afterwards, he …my elbow, and pointed behind him, where I saw this Miss putting …d upon the head of her companions, in the very peculiar manner of …urzheim, and saying in his accent, 'you, miss, have the bump of so …, and you, miss, have the bump of so and so.' He laughed heartily …verification of his prediction."

…ld phrenology, in spite of our surmises, become universally popular, …iversally applied to practice, who can imagine the consequences! …trade and calling will experience its novel influences. We shall …ve regular patterns to fit on the heads of our preachers, and doctors, …wyers, to ascertain which of them are nearest to perfection. The …at will take the measure of his customer's head, in order to ascertain …s trustworthy. The poor wight who has the unlucky bump of ac…veness near the top of his cranium will get no credit. Should a for…e committed, forth march the officers of justice with their callipers, …ine, on suspicion, every unfortunate fellow that has a large organ of …on. If a murderer is to be apprehended, wo to the vagabond who …mps behind his ears!

DR. GODMAN'S RAMBLES OF A NATURALIST.

(*Continued from page* 109.)

…ng the insects to which we all feel attached as a harmless house… is the cricket—Gryllus *domesticus*. It is a singular circumstance in …ory, that we never hear its shrill music till the days begin to grow …The field cricket, G. *campestris*, is a very numerous family; the …lays about 300 eggs. Judging from its actions, it is in no better …on than some our South Sea Islanders; for it preys upon the house …, as well as another species of its own genera, which frequents the …We once confined four very handsome little fellows with yellow …and about one-fourth the size of the campestris, to observe their …ents. Their song was remarkably soft and pleasing. After three …huge campestris was admitted, and the little ones, apparently con… of danger, ceased their song, and exhibited the greatest agitation. In …rse of a few hours three of them were totally devoured. The four small …revious to this, had manifested no compunction on eating their fifth …ion, after he had died within the box. The extract which Dr. God… …ves respecting the large field cricket, may furnish information to …of our readers.

These lively black crickets are very numerous, and contribute very largely to that general song which is so delightful to the ear of the true lover of nature, as it rises on the air from myriads of happy creatures rejoicing amid the bounties conferred on them by Providence. It is not a *voice* that the crickets utter, but a regular vibration of musical chords, produced by nibbing the nervures of the elytra against a sort of network intended to produce the vibrations. The reader will find an excellent description of the apparatus in Kirby and Spence's book, but he will enjoy a much more satisfactory comprehension of the whole, by visiting the field cricket in his summer residence, see him tuning his viol, and awakening the echoes with his music. By such an examination as may be there obtained, he may derive more knowledge than by frequent perusal of the most eloquent writings, and perhaps observe circumstances which the learned authors are utterly ignorant of.

The shrew is an interesting and harmless little animal, but received its bad name from the supposition that its bite produced a disease in horses; which is not the case.

Among the great variety of burrows formed in the grass, or under the surface of the soil, by various animals and insects, there is one that I have often anxiously and as yet fruitlessly explored. This burrow is formed by the smallest quadruped animal known to man, the minute *shrew*, which when full grown, rarely exceeds the weight of *thirty-six grains*. I had seen specimens of this very interesting creature in the museum, and had been taught, by a more experienced friend, to distinguish its burrow, which I have often perseveringly traced, with the hope of finding the living animal, but in vain. On one occasion, I patiently pursued a burrow nearly round a large barn, opening it all the way. I followed it under the barn floor, which was sufficiently high to allow me to crawl beneath. There I traced it about to a tiresome extent, and was at length rewarded by discovering where it terminated, under a foundation stone, perfectly safe from my attempts. Most probably a whole family of them were then present, and I had my labor for my pains. As these little creatures are nocturnal, and are rarely seen from the nature of the places they frequent, the most probable mode of taking them alive would be, by placing a small mouse-trap in their way, baited with a little tainted or slightly spoiled meat. If a common mouse trap be used, it is necessary to work it over with additional wire, as this shrew could pass between the bars even of a close mouse trap. They are sometimes killed by cats, and thus obtained, as the cat never eats them, perhaps on account of their rank smell, owing to a peculiar glandular apparatus on each side, that pours out a powerfully odorous greasy substance. The species of the shrew genus are not all so exceedingly diminutive, as some of them are even larger than a common mouse. They have their teeth colored at the tips in a remarkable manner; it is generally of a pitchy brown, or dark chestnut hue, and, like the coloring of the teeth in the beaver and other animals, is owing to the enamel being thus formed, and not to any mere accident of diet. The shrews are most common about stables and cow-houses; and there, should I ever take the field again, my traps shall be set, as my desire to have one of these little quadrupeds is still as great as ever.

Dr. Godman lived for a considerable time in Anne Arundel county, Maryland. It was here he collected much information respecting natural history. The following sketch of the sunfish, Cephalus—*Shaw*; Orthagoriscus—*Schneider*—will not fail to interest all our readers.

During the spring months, and while the garden vegetables are yet too young to need a great deal of attention, the proprietors frequently employ their blacks in hauling the seine; and this in these creeks is productive of an ample supply of yellow perch, which affords a very valuable addition to the diet of all. The blacks in especial manner profit by this period of plenty, since they are permitted to eat of them with outrestraint, which canno the said of any other sort of provision allowed them. Even the pigs and crows obtain their share of the abundance, as the fishermen, after picking out the best fish, throw the smaller ones on the beach. But as the summer months approach, the aquatic grass begins to grow, and this fishing can no longer be continued, because the grass rolls the seine up in a wisp, so that it can contain nothing. At this time the spawning season of the different species of sun-fish begins, and to me this was a time of much gratification. Along the edge of the river, where the depth of water was not greater than from four feet to as shallow as twelve inches, an observer would discover a succession of circular spots cleared of the surrounding grass, and showing a clear sandy bed. These spots, or cleared spaces, we may regard as the nest of this beautiful fish. There, balanced in the transparent wave, at the distance of six or eight inches from the bottom, the sunfish is suspended in the glittering sunshine, gently swaying its beautiful tail and fins; or wheeling around in the limits of its little circle, appears to be engaged in keeping it clear of all incumbrances. Here the mother deposits her eggs or spawn, and never did hen guard her callow brood with more eager vigilance, than the sunfish the little circle within which her promised offspring are deposited. If another individual approach too closely to her borders, with a fierce and angry air she darts against it, and forces it to retreat. Should any small, and not too heavy object be dropped in the nest, it is examined with jealous attention, and displaced if the owner be not satisfied of its harmlessness. At the approach of man she flies with great velocity into deep water, as if willing to conceal that her presence was more than accidental where first seen. She may, after a few minutes, be seen cautiously venturing to return, which is at length done with velocity; then she would take a hurried turn or two around, and scud back again to the shady bowers formed by the river grass which grows up from the bottom to within a few feet of the surface, and attains to twelve, fifteen, or more feet in length. Again she ventures forth from the depths; and if no further cause of fear presented, would gently sail into the placid circle of her home, and with obvious satisfaction explore it in every part.

Besides the absolute pleasure I derived from visiting the habitations of these glittering tenants of the river, hanging over them from my little skiff, and watching their every action, they frequently furnished me with a very acceptable addition to my frugal table. Situated as my boarding house was, and all the inmates of the house busily occupied in raising vegetables to be sent to market, our bill of fare offered little other change than could be produced by varying the mode of cookery. It was either broiled bacon and potatoes, or fried bacon and potatoes, or cold bacon and potatoes, and so on at least six days out of seven. But, as soon as I became acquainted with the habits of the sunfish, I procured a neat circular iron hoop for a net; secured to it a piece of old seine, and whenever I desired to dine on *fresh* fish, it was only necessary to take my skiff, and push her gently along from one sunfish nest to another, myriads of which might be seen along all the shore. The fish, of course, darted off as soon as the boat first drew near, and during this absence the net was placed so as to cover the nest, of the bottom of which the meshes but slightly intercepted the view. Finding all things quiet, and not being disturbed by the net, the fish would resume its central station, the net was suddenly raised, and the captive placed in the boat. In a quarter of an hour, I could generally take as many in this way as would serve two men for dinner, and when an acquaintance accidentally called to see me, during the season of sunfish, it was always in my power to lessen our dependence on the endless bacon. I could also always select the finest and largest of these fish, as while standing up in the boat, one could see a considerable number at once, and thus choose the best. Such was their abundance, that the next day would find all the nests reoccupied. Another circumstance connected with this matter gave me no small satisfaction; the poor blacks, who could rarely get time for angling, soon learned how to use my net with dexterity; and thus, in the ordinary time allowed them for dinner, would borrow it, run down to the shore, and catch some fish to add to their very moderate allowance.

For the Advocate of Science.

BURNING MIRRORS.

In a late number of the Advocate, I noticed an allusion to the *burning mirrors* of Archimedes, and also to the "contrivance of Count Buffon," as giving probability to the story of Archimedes firing the Roman fleet by means of his reflectors. The history of this singular application of science, being corroborated by accounts of other similar exploits, seems entitled to credit; but the method by which the philosopher is generally supposed to have accomplished that astonishing result, to me appears altogether improbable, if not impossible. It must, at least, be a very slow and difficult process to adjust a sufficient number of mirrors so that their several reflections shall coincide in a single point; and that point many rods distant, and from the nature of the case, inaccessible to the operator. Unless the faint reflection from each of the small mirrors could be observed, so as to regulate the adjustment by the eye, the attempt would be hopeless; for there could certainly be no other sufficiently accurate guide. Even when there is an opportunity of making all necessary observations at the point of incidence, as in the case of Buffon's experiments, it cannot but be a tedious process to bring so many glasses to bear upon a single point.

But whatever method may have been practised by the Syracusean, it is very evident one might be adopted which would prove much more simple in construction, and expeditious in its effects. Instead of the awkward instrument consisting of 168 mirrors, with at least as many screens, all of which must be moved, perhaps many times, for every change of focal distance, two simple concave mirrors might be arranged so as to answer every purpose, and form a much more perfect instrument in all respects than Buffon's. To every person acquainted with optics this will be apparent, from a single glance at one or two well known principles. First, if two concave mirrors are placed at a distance from each other equal to the sum of their foci, and so disposed that the rays of the sun (or any other parallel rays) falling upon the first are reflected to the second mirror, the rays, after crossing each other at the common focus of the two mirrors, will at last be reflected in a parallel direction. It is also well known that if the distance between the two mirrors is at all increased, the rays are instantly converged so as to come to a focus *somewhere;* and the farther the mirrors are separated the g the convergency, and consequently the shorter the focal dis Thus by merely moving *one* mirror, instead of *one hundre sixty-eight*, a focus may be obtained of any distance propose

But even the trouble of obtaining a focus may be saved. By l the focal distance of the second mirror much shorter than t the first, the rays may be sufficiently concentrated by the fi flection, so as to be thrown off *parallel* from the second mirror instrument would then be ready at all times for any distance, out requiring any other adjustment than to give the rays t quired direction. An instrument with the focal distance first mirror, thirteen times that of the second, (the two foci co ing as before,) would be full as powerful as Buffon's, allowi instrument to be so perfectly adjusted that the 168 refle should exactly coincide. If the first mirror has twenty tim focal distance of the second, so that the rays falling upon it s thrown into a circle on the other, of only one twentieth of th meter of the first mirror, the heat will be increased four hu times,* without attempting to bring the last reflection to a The heat thus concentrated, passing in parallel rays, woul ought I see, (deducting a trifle for atmospheric absorption equally intense, at the distance of a foot, or a mile, or ten so that a ship might probably be set on fire at the distance, "bowshot" merely, but of cannon-shot.

The plan here suggested, would possess another important a tage over the apparatus of Buffon, or any other *single* reflector rays of heat might be thrown in any direction; whereas a sing flector, or a set of reflectors like Buffon's, constituting in fa one concave mirror, could be brought to bear, comparatively on a small field, and that in a particular direction. A single r tor must obviously throw the rays back *towards* the sun; a d reflector (if the term is allowable) would throw them equally in a line opposite the sun, or in any other direction.

L. H.

* The intensity of heat, like that of light &c. is inversely as the square diameter, of the area over which it is diffused.

The communications which appeared in our two last Nos. one on the ref of light, and the other on shooting stars, were both from the pen of our cor dent L. H. P.

For the Advocate of Science.

A SCIENTIFIC RAMBLE, NO. 5.

Louis.—I promised our cousin Ellen that we would call f in some of our rambles. She thinks herself more courageou reasonable than in her previous excursion, and feels inclined t our party again.

Father.—We will call for her the next time. I am afra company would disconcert us again, and we have not time n play. Keep your eyes open, my sons, and we shall no doub something interesting.

John.—Louis has discovered something curious, and I expe give us a lecture on it.

Louis.—I can lecture so far as to say that this is a branch cedar tree, containing some of the fruit, or cedar apples, a f remedy for worms. But I see one of my audience is laughin cording to his disrespectful custom.

John.—'Tis enough to make one laugh to hear you call those *apples* and *fruit!*

Louis.—To be sure they are fruit,—I have often eaten the

John.—You might choose to eat moss from a tree; but that not make fruit of it.

ther.—I would advise you, Louis, to drop your argument. But
n is so good at telling what they are not, let us hear from him
they are.

is.—I took them for the effects of disease—what are called
l excrescences.

ther.—Your own errors should teach you charity for your bro-
They are neither fruit, nor the effects of disease; but ex-
nces made by the sting of an insect, all containing eggs or
insects, which you will see on opening one.

is.—Sure enough, there is a living thing with wings. How
nt it is to think that I have eaten such animals, innocently!
am as much perplexed as the king with the dumpling, to know
e fellow got in.

ther.—The insect has been there from the egg. There are
l tribes of insects which rear their offspring in this manner.
nother is furnished with a sort of sting, called an *ovipositor*,
which she penetrates the bark of the tree, and deposits her
the puncture. The juice of the tree exudes and forms a
ng for the egg, which soon becomes an insect, of which the
food is the excrescence that you observe. By the time this
of nourishment is exhausted the animal is ready to emerge
s cradle, and take flight.

n.—I ought to have reflected that the gallnut, of which ink is
is the work of an insect. I suppose the galls are plucked be-
e insect is hatched.

ther.—They are; and the egg is killed by drying. Let us find
k tree, and we shall doubtless perceive some of them. Here
anch which you see is almost covered with excrescences,
h by their shape it is evidently not the work of the common
sect.

is.—Is it possible that the insect can control the shape of the
scence?

ther.—Each insect, or rather each species of insect, uniformly
ces the same kind of excrescence. This is one of the most
llous things in nature. Often, on the same tree, you may
guish several, even a dozen different sorts of galls, some of
hard as wood, others spongy, some bitter, others insipid, some
, others shaped like pine apples, or covered with small leaves.
e of some kinds of insects always contain several of the young
e gall, each one occupying its own apartment in the partitioned

n.—Here is one branch which even I, to say nothing of Louis,
have supposed to contain the seed of the plant.

ther.—Greater persons than you have made greater mistakes
that. The celebrated herbalist Gerard, describes a willow as
inct species, because it bore something like roses, "not only,"
s quaint style, "making a gallant show, but being set up in
s for the decking of the same." Others have supposed the
or young insects in galls to have been sucked up by the roots
e tree, or generated by putrefaction.

n.—Why are the ink galls called Aleppo galls, if they are pro-
d in this country.

ther.—Although galls are found here, they are not of the same
, not being produced by the same species of insect, as the Tur-
galls.

n.—I wish to know one thing more. In reading an incom-
account of the periodical locust, I remember it was stated that
animal punctures the twigs of trees and deposits her eggs in the
d. Do these produce galls?

ther.—No. The egg of the locust soon hatches and the young
ay then requires to be placed on the ground. The parent
fore inflicts a deep wound on the young branch of a tree suffi-
to kill it, when it drops off and carries the young brood to the
d, in a condition to commence their descent beneath the sur-
There are some other curious traits in the history of the lo-
which I will give you at another time.

is.—I am charmed with the history of these gall insects.
few persons there are who consider while the ink flows from
pen, that this ink is indirectly the product of a little insect—
ps the same that is at the time buzzing about their eyes and
The revelations of science are certainly wonderful. Who
d have imagined how dependent are the different parts of crea-
one on another? The acquaintance of a single insect like this, gives me more real pleasure, more soul felt enjoyment than all the novels I ever read.

Father.—You have yet much to learn my son. A life time spent in these delightful pursuits would not exhaust their rich fund of intellectual enjoyment. Every day a new harmony of nature—a new link of union between yourself and the world of life around you, will break into view. You will discover in your progress that for almost every necessary, every comfort, every luxury of life, you are dependent on objects, which the gay, the proud, and the great of the world know not, or know only to despise. The book of nature is filled with lessons which teach us the ways of God to man. In studying its pages we partake of pleasures that cloy not, of enjoyments that never satiate. We are taught humility without debasement, and exaltation without pride. Even the humble insect whose character you have been examining has relations with its fellow insects not less wonderful than any thing we have yet observed. In that strong and almost impenetrable cell, one would suppose the embryo animal secure from the ravages of the enemy. What then is to prevent the race from increasing to a serious extent? There is no evil in nature without its remedy. A species of *Ichneumon*, equipped like the other with an ovipositor, has been endowed with an instinctive impulse to deposit its egg in the young and fresh excrescence of the gall insect, at a certain period, when its progeny will find the original tenant in a suitable condition for its food. But the young ichneumon does not at once devour or kill its prey. This would be death to itself. It is therefore made capable of drawing nourishment from the body of the gall insect, while the latter continues to feed on the excrescence. In this way the ichneumon grows from a much smaller, to be a larger animal than the rightful occupant of the cell; and just at the time the gall insect has eaten its way to the shell of its prison, it dies of exhaustion, and its devourer readily breaks forth, and takes flight, a matured insect, in all probability to be itself the object of the instinctive appetite of some other insect. So intimately linked together are the works of the outward creation—the great with the small, the proud with the humble, man with the worm. Q.

JOURNAL OF THE WEATHER

For 9th Month, September, 1833, kept at Wilmington, Del.

d	THERM.	BAROMETER.	WINDS.				RAIN	OBSERVATIONS.
			○	☽	●	☾		
1	66	87 67	29.82	29.75	W	N.W		Partly clear.
2	58	73 66	.91	.95	N.N.W	N.W		Partly clear.
3	54	67 66	.95	.95	N.E	E		Cloudy.
4	65	84 76	.96	.96	E	S.E		Partly clear—hazy.
5	72	88 75	.85	.80	S.W	S.W		Clear.
6	70	80 68	.75	.75	S.W	N.W		Cloudy.
7	66	73 65	.99	.98	N	N.W		Cloudy—rain.
8	64	63 59	.99	.97	N.E	N.W		Partly clear.
9	57	70 65	.80	.78	E.N.E	N.E		Clear.
10	63	80 66	.99	.95	N.E	S		Partly clear—shower.
11	57	73 61	.87	.73	S.S.W.	W.N.W		Clear.
12	58	58 52	.90	.95	W.N.W	N.W		Clear.
13	50	63 50	.94	.96	N	N.N.E		Clear.
14	49	66 53	.96	.99	N.N.E	W.S.W		Clear.
15	46	70 57	.04	.00	W.S.W	W		Clear.
16	51	70 57	29.97	29.98	W	N.E		Clear—hazy.
17	53	70 62	.94	.99	N.E	S		Clear—hazy.
18	62	66 67	30.07	.98	S	S.S.W		Fog—clear.
19	65	81 72	30.04	.80	S.S.W	W.S.W		Fog—clear—shower.
20	66	85 75	.87	.75	W.S.W	S.W		Clear.
21	63	66 62	.80	.63	S.W	S.W		Clear.
22	52	66 56	.73	.70	N.N.E	N.E		Clear—hazy.
23	41	66 56	30.03	.79	N.N.E	S		Clear—hazy.
24	51	67 55	30.02	.90	E.N.E	S.S.E		Rain.
25	49	72 61	29.98	.99	E.N.E	S.S.E		Cloudy.
26	54	76 63	.88	.93	N	N.W		Clear.
27	53	81 68	.75	.76	N.W	N.W		Clear.
28	63	78 66	.77	.80	W	W		Clear—hazy.
29	64	81 68	.80	.75	W.N.W	W.N.W		Clear—hazy.
30	73	76 62	.87	.85	S.S.W	S.E		Clear—hazy.
			30.03	30.04	S.E	N.E		Clear.

Note.—In the columns representing the "Force" of the wind, 0 denotes calm, or nearly so, 1 a light breeze, 2 a breeze, 3 a wind, 4 a high wind, and 5 a very high wind. The letters R, T and L denote rain, thunder and lightning respectively.

The foregoing observations on the thermometer, barometer and winds, are taken three times a day; at sunrise, mid day and 11 P. M.

SUMMARY.

Average at sunrise, thermometer	58.70°	—barometer	29.90	inches.	
Do. at mid-day,	do.	73 20°	do.	29.88	do
Do. at 11 P. M.	do.	63.20°	do.	29.876	do.
Monthly mean, (2 obs.)	do.	65 95°	do.	29.80	do.
Maximum, (5th)	do.	88°	do. 17th	30.07	do.
Minimum, (14th)	do.	42°	do. 20th	29.68	do.
Range,	do.	46°	do.	.39	do.
Warmest day, 5th,	do.	80°			
Coldest day, 14th,	do.	54°			

Northerly Winds prevailed, (proportion,)	10 days	Proportion of cloudy weather,	8 days
		Whole days clear,	17
Easterly, do.	9 do.	Days on which rain fell,	7
Southerly, do. (S. to S.W.)	11 do.	Quantity of rain,	4.47 in.
Proportion of clear weather,	22 do.		

Observations.—Auroras none. Clouds electrified on three days, but no thunder storms, except two distant ones. Two complete easterly storms with rain, and two others incomplete. Winds generally light and unsteady: The 4th and 5th were warmer than any day in August, and 8th and 13th cooler at noon than any day since May. Frost was reported on the morning of the 14th, but none was seen near Wilmington. The mercury on that morning stood at 10° above the freezing point; a temperature which would have produced a general white frost, in the spring of the year. Much overcast and unsettled weather occurred in the first half of the month, but the remainder was mostly clear and delightful.

MISCELLANIES.

1. *Importance of steam navigation to the western states.*—Without this invention, a century would have been requisite to bring the advancement of the West to the same point, as the last ten years of steam navigation have effected. Without this, it would have been a country of shepherds and unimproved husbandmen for a century to come. It has united the most distant points in easy and rapid intercourse, and brought towns, five hundred leagues apart, into a kind of juxtaposition.—*Flint's Lectures.*

2. *Education of birds by their parents.*—Nothing is more striking than the efforts of the maternal birds to tempt their young to make the first experiment of trusting themselves to their wings. The nightingale flutters around her nest, holding an insect in her bill at a little distance, to draw her young to the edge of the nest, and to incite them through their appetite, to make their first effort with their wings. The Iceland diver offers a still more striking spectacle of maternal solicitude. The bird builds its nest on the steepest summits of mountains near the shore of the sea. As soon as her young are fledged, she ceases to bring them their habitual food. But she continues to visit them, to flutter about the nest, to show them the power of her own wings, and to invite them to follow her. The young bird, oppressed by hunger, approaches the edge of the precipice, hesitates, and finally falls into the air. Its wings are too small to sustain it, and it would dash upon the rocks below. The mother summons the aid of the male. They spread their wings in concert a little beneath their young, to allow free play to its wings. Thus they gently let the bird down to the shore, partly by its own exertions. When it has reached the shore, clouds of their kind assemble round the young bird, and raise cries of congratulation at the view of this new companion, that maternal love has emboldened to the first attempt at flight.—*Ib.*

3. *Sagacity of the African cuckoo.*—The traveller, who wanders in the wild forests of Africa, hears a shrill cry. It is the note of the herald cuckoo. He raises his head, and follows the bird, that advances fluttering before him. The bird alights upon a rock, or a tree, in the hollow of which is a swarm of bees. As a reward for its discovery, the bird expects a piece of the fragrant honey comb. *Ib.*

4. *True theory of the sea serpent.*—This monster of the deep produced a great deal of very harmless excitement among worthy countrymen of the eastern states, and hundreds of fish ries have been told of him. A recent adventure found him to sist of a number of porpoises who had arranged themselves in a forming the "joints," "about the bigness of barrells," describ antecedent navigators. It is probable that the marvellous sea pent is in reality a creature of this compound nature.

5. *Hog yokes.*—In passing through the country we may see the inventive genius of the farmer has been called in requisiti framing yokes and other instruments for the use of the various mals under his especial guardianship,—from the simple goose t mammoth ox. But we question whether any are to be obse combining so much simplicity with a perfect completion of ob as the yokes which the natives of some of the South sea isl make for their companions of stubborn fame, the hogs. Ellis, i Polynesian researches relates, that they cut out of each ear a cular piece as large as a shilling or half crown, and when the w has healed, insert a wooden bar in the holes, projecting a or thereabouts on either side. As this bar lies horizontall comes in contact with the upright sticks of the fence, and pre the animal from passing, even though he should succeed in ge his head through the pannels. Unless well fed, they are destructive to fences and gardens, biting through a stick one o inches in diameter with the greatest ease. The natives wer conscious of the preservative effects of salt on animal food till l and they never thought of sitting down to a meal with less t *whole hog* baked. Dogs flesh was formerly prized by the inhabi next to that of swine, but they were not reared so general an article of food as among the natives of the Sandwich Islands, w they were fed and considered more as a luxury, and so eate the chiefs. The dog and the hog where the only animals w flesh were eaten by the Tahetians; the Friendly Islanders occa ally eat rats uncooked.

6. *Application to study.*—It is said of Demosthenes, that t the further removed from noise and the distractive affairs o world, he had a small chamber made under ground, in whi occasionally confined himself for whole months; shaving ha head and face, that he might not be in a condition to go ab There it was he composed the orations on which he estabiish himself a lasting fame. The envious demagogues of the day, by of implying that they were too elaborate, said they smelt of oil. is plain," was his reply, "that yours did not cost you so much ble." While dwelling in his subterranean abode he copied th tory of Thucydides eight or ten times, that he might be able t tate the style and force of that great historian. He was an early

AGENTS.

ADAMS, Mass.—*P. Briggs*, P. M.
BRISTOL, Pa.—*Anthony Swain.*
FRANKFORD, Pa.—*John D. Griscom.*
MOUNT HOLLY, N. J.—*Samuel Bullock.*
MORRISVILLE P. O. Pa.—*Hector C. Ivins.*
POTTSVILLE, Pa.—*Elihu Pedrick.*
BALTIMORE, Md.—*Joseph Earnest, No.* 40 *S. Eutaw Stre*
SANDY SPRING, Mont. Co. Md.—*James P. Stabler.*
ALEXANDRIA, D. C.—*Henry Stabler.*
WASHINGTON, D. C.—*William C. Ellison.*
LOUISVILLE, KY.—*Wilcox, Dickerman & Co.* Booksellers.
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